Climate change is no hoax

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Body

Convincing the public and governments to accept the seriousness of anthropogenic global warming is akin to the problem of a person dealing with a serious or terminal illness. Most of us have experienced the misfortune of a loved one falling seriously ill; it is a time of stress and confusion. When medical experts diagnose a serious illness, a frequent initial reaction is denial. It is perfectly natural, and even recommended by medical experts, to obtain a second opinion. But when the second or third expert opinion confirms the diagnosis, one has to accept it, however depressing it may be.

In the case of global warming the patient is the Earth and the team of medical experts represent the thousands of scientists (from many disciplines)who have been carefully monitoring the planet in increasing detail for many decades. Over this time they have amassed an immense amount of knowledge and insight into the workings of the Earth's climate system, and the science continues to advance rapidly. Recently, 26 eminent scientists compiled the Copenhagen Diagnosis--a report card on the status of science and the state of the planet. Some of the worrying symptoms of 'patient Earth' are listed below, and it is these realities that those in denial will do anything to divert people's attention from:

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1)The figure shows that global temperatures have risen significantly in the past 130 years, but the increase in temperature is not smooth and displays much year-to-year variability. This is, in part, because of short-term climate variability and consequently, we should not expect a new global temperature record to be set each succeeding year. Despite a decrease in solar activity, all but one of the top 10 warmest years (including 2009) have occurred in the 21st century. Three independently analyzed global surface temperature data sets display the same long-term warming trend shown here, as do global weather balloon and satellite atmospheric temperature data.

2) Other measurements clearly indicate that the losses of ice from both the Greenland and west Antarctic ice sheets are accelerating, while globally the loss of ice from most Alpine glaciers (e. g., Athabasca glacier) has accelerated since 1990.

3) The loss of Arctic summer sea ice, especially the thick multi-year ice, has accelerated in the 21st century, and is far exceeding even the most pessimistic projections of the IPCC. Since 2005, the summer Arctic ice extent has been at minima not expected to occur until around 2050.

4)Sea level rise, from the land-based melting ice sheets and from thermal expansion as the oceans heat up, is accelerating and is occurring at a rate which is on the very upper bound of the most pessimistic projections made by the IPCC. The Scientific Committee on Antarctic Research now estimates that ocean levels could increase by up to 1.5 metres by 2100. Currently, 160 million people live in regions less than one metre above sea level.

5) Another problem is the lowering of the oceans'pH in response to absorption of atmospheric CO2, which is increasing due to human activities by currently about 2 ppm per year. Ocean acidification has very significant impacts because it affects various marine ecosystems and the global marine food supply. Further disruption and stress to the marine food chain does not bode well at a time of increasing demand for food.

The latest research indicates that the health of planet Earth is already more serious than scientists initially thought.

Scientists have known for more than 100 years that the natural level of greenhouse gases keeps the mean global surface temperature about 34 C warmer than it would be in their absence, and that without these gases the planet would be uninhabitable. In an incredibly short time humans have increased atmospheric CO2 to its highest levels in over 800,000 years. Some people would try to have us believe that doing so will have no negative consequences. This vocal and organized group of denialists is trying to convince the public that global warming is a hoax. To this end they fabricate controversy and conspiracy theories, (e. g., "Climategate").

A very large team of independent, climate experts from around the globe have concluded that the patient, planet Earth, is ill. They explain that there are no certainties, but given the risks and an extremely high probability that the diagnosis is correct, it is prudent to avoid delaying action.

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Graphic

Chart/Graph: Supplied; GLOBAL LAND-OCEAN TEMPERATURE INDEX.

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